"FECAL OCCULT BLOOD TESTING (G FOBT) IN ASYMPTOMATIC ELDERLY INDIVIDUALS FOR COLORECTAL CANCER SCREENING"

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TAMILNADU

CERTIFICATE

This is to certify that this dissertation entitled **"FECAL OCCULT BLOOD TESTING (G FOBT) IN ASYMPTOMATIC ELDERLY INDIVIDUALS FOR COLORECTAL CANCER SCREENING"** submitted by **Dr. A. Senthilvadivu** to the Faculty of Medical Gastroenterology, The Tamilnadu Dr.MGR Medical University, Guindy, Chennai-600032, in partial fulfillment of the requirement for the award of DM Degree, Branch IV (Medical Gastroenterology) is a bonafide work carried out by him under my direct supervision and guidance.

Prof. Dr.S.Jeevan Kumar, **M.D., D.M**
Professor and HOD,
Department of Medical Gastroenterology,
(DDHD@GPH, Annanagar),
Kilpauk Medical College
Chennai

Dr. P. Ramakrishnan, **M.D., D.L.O**
Dean,
Kilpauk Medical College,
Chennai

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FECAL OCCULT BLOOD TESTING (G FOBT) IN ASYMPTOMATIC ELDERLY INDIVIDUALS FOR COLORECTAL CANCER SCREENING

INTRODUCTION

INTRODUCTION

Colorectal cancer ranks third in male and the second in female worldwide [1]. Colorectal cancer varies 10 times in both sexes worldwide, Incidence are high in south Asian, South African countries [1].

In Asia, colorectal cancer incidence varies widely, low when compared with developed countries to southern countries, and rapidly raised in economically developed [1, 2].

According to Indian cancer registry age adjusted incidence in India are very minimal when compared with the world registry [2]. Lifetime risk of dying from CRC is 2.5%. If diagnosed early 90% survival, localised cancer up to 40% [3].

Sudden change in diet and physical activity causes rapid increase in colorectal cancer in economically transforming countries [4-9].

Trend of colorectal cancer in India is rising [5], this trend is also seen in migrating population and also due to change in diet, life style and

physical activity [6-8]. Incidence in India 4.3 (male), 3.4 (female) per lack, this is a population based study.

Fecal occult blood, flexible sigmoidoscopy and colonoscopy are used as screening procedure in high incidence areas to reduce mortality [9].

REVIEW OF LITERATURE

REVIEW OF LITERATURE

EPIDEMIOLOGY

Higher rate of CRC is seen in developed countries with variable frequency in different population, less in women than men, because variation in environmental factors, diet, migrating from low risk to high risk area.

Environment has major role in the aetiology of colorectal cancer as evidenced by inter regional variation in incidence, strong link exists between diet, physical activity and colorectal cancer [(3)].

ETIOLOGY

CAUSAL AND PROTECTIVE FACTORS IN COLORECTAL CANCER

PROTECTIVE FACTORS

- Non steroidal anti inflammatory drugs
- HRT
- Weight reduction

- Increased Physical activity
- High Carotene
- Vitamin C & D

CASUAL FACTORS

- Cigrate smoking
- Diabetes mellitus
- High fat & low fiber
- Red meat consumption
- Environmental carcinogen & mutagens
- Heterocyclic amines
- Low dietary selenium

A prospective study including women of 34 to 59 yrs taking increased red meat, increased fat, and low fiber showed increased rate of colon cancer. This difference was mainly due to variable fat composition [(3)].

Rodents when fed on polyunsaturated and saturated fats, followed experimental injection of DMH will develop more of colonic adenocarcinomas induced by carcinogen than rodents fed on low fat diet.

Britan study in BMJ published that large bowel cancer is frequently associated with high carbohydrate and low fiber, and also insisted on the priority of vegetable fibers in the protection of colon cancer in the long way [13-16].

Urban residents have increased incidence than rural peoples [17]. This is due to increased “Westernizations”.

Dr. Malhotra’s paper showed that people on high fiber and fruits had no reduction in cancer incidence.

One of British study says that increased case of cancer in vegetarians than with non vegetarians.

Population based study comparing smokers and non smokers on vegetarian diet followed for many years have shown inverse association between diet and colon cancer.

Large population based study for many years on persons with vegetarian diet showed low incidence of distal colon cancer [18-23].

Various RCT showed that people on high fruit and vegetables (cruciferous) found that reduce cancer risk by 25% to 40%.

Population based trial on the effect of polyp recurrence by dietary intervention had no impact on the site, size, number and advanced adenomas.

Interventional trial showed that antioxidants reduce cancer risk and adenoma recurrence [27-28].

Increased fat in the food leads to more fatty acids, which in turn produces sterols acted by bacteria in colon to produce toxic substances like secondary bile acids and cholesterol metabolic products.

This activates protein kinase c activated AP-1. This converts arachidonic acid to prostaglandin leads to cell proliferation.

COX-2 inhibitors and NSAIDS low prostaglandin synthesis which in turn reduce colon cancer.

Adenomas and cancer has positive association with cholesterol and lipoprotein and inverse with obesity and activity population based study.

FIBER

Plant fiber is a mix of carbohydrates and noncarbohydrates have low causal factor of colorectal neoplasia [29, 30]. Observational studies also support this.

Mode of action:

Fermentation of fiber by colonic bacteria, which reduces ph that inhibits carcinogenesis

Bacterial metabolic enzymes are reduced

Colonic transit is increased

Bulk of stool is increased

CALCIUM

Calcium protects against colon cancer [31] a comparative study calcium supplements reduces adenoma by 15%.

FOLATE:

Folate deficiency causes more adenoma, supplements reduces adenoma.

Lifestyle

Body Mass and physical activity

Western life style, obesity, hormonal factors, insulin resistance all have increased incidence according to a population based study.

Smoking

Early studies have shown that carcinogenic by products are responsible.

PATHOPHYSIOLOGY AND MOLECULAR GENETICS

Precursor Lesions – Polyps 1) hyperplastic 2) adenomas

Adenomas are classified into

Tubular

Villous

Tubulovillous

Carcinoma is more common in villous adenoma.

Less association with colon cancer and hyperplastic polyp [(9)] .

Malignant hyperplastic polyps are as follows, site, size, number,

Histo pathological finding and family history. Sessile serrated adenoma is linked with colon cancer. A serrated adenoma arises from abnormal crypt epithelium proliferation and has nuclear atypia [31 33].

BRAF genetic mutations, DNA methylation associated with serrated adenoma [34]. High microsatellite instability is sporadic colon cancer [35].

Serrated adenoma seen in areas of severe dysplasia, and share a common pathway in MSI-H pathway.

Syndromic Colon Cancer

Mendelian autosomal dominant inheritance on chrosome 5 q [36-39]. Numerous adenomatous polyps develope in the colon after puberty and develop colon cancer [7].

Veale [40] single dominant mutation in FAP

Herrera [41] deletion in chromosome 5 with APC mutation

Bodmer [42] Chromosome 5 has APC mutation

Kinzler [43] positional cloning identified the APC gene on chromosome 5

HNPCC starts in the middle age, right side with few polyps.

Peltomaki [44] HNPCC have MSI.

Fishel [45] first human mismatch repair gene hMSH2 (hMLH2)

Bronner [46] and Papadopoulos [47] second mismatch repair gene.

Kolodner [48] have hMSH2 mutations.

Sporadic Cancer

Colon cancer follows adenoma carcinoma sequence, mismatch repair genes account for 15% in sporadic colon cancers [49], due to DNA hypermethylation.

Majority of APC mutation in sporadic colon cancers [49], identified to arise from abrent crypt foci of the colonocytes whish is the earliest manifestation [50].

75% will have p53 mutation in high grade dysplasia.

HISTOPATHOLOGY OF COLON CANCER

Histology

Colon cancers are classified as poor, moderate and well differeanted

Gross Pathology

Colon cancer can present as polyp that is with stock or without, proliferative growth, or constriction . 1% of diminutive polyps contain cancer [51]. Metastasis will be earlier in sessile than in pedunculated polyp, because it is very close to lymphatic drainage [52]. Similarly flat lesions are grow fast to other areas than the stalk less polyp, because of cellular growth is not into the lumen.

Left sided lesion are diagnosed earlier than right so less incidence of left colonic lesion.

Staging of colon cancer

Colon cancer spreads by

Lymphatic drainage

Vascular supply

And local invasion

Dukes' classification

Stage A sub mucosa not involved

Stage B1 both sub mucosa and muscularis propria

Stage B2 muscularis propria into the serosa

Stage C to regional lymph node

Stage D distant organ involvement

TNM - classification

Primary tumor (T)

Local lymph node metastases (N)

Distant metastases (M) , stage I to IV.

STAGE

I - Dukes' A or B1 lesions

II - Dukes' B2 lesion

III - Dukes' C lesion

IV corresponds to Dukes' D lesion - 20% [60].

CLINICAL PRESENTATION

Symptoms

- Pain Abdominal
- Altered bowel habits
- Bleeding per rectum
- Easy fatigability
- Loss of weight [52-54].

Unusual Clinical Presentations

Acute colonic obstruction

- Proliferative luminal growth
- Intermittent obstruction

Ischemic colitis

- Proximal dilatation by malignant obstruction
- Infiltration of the vessels by cancer cells

Perforation

- Acute can cause acute generalized peritonitis
- inflammatory mass or abscess
- Local peritoneal signs

Fistulas - adjacent organs (bladder or small bowel)

Rectal bleeding

Lab investigation

Complete blood count

Hemoglobin – anaemia [10]

Blood sugar

Serum electrolytes - abnormal in patients with diarrhoea [55]

Hypoalbuminia [56]

Raised sap due to liver secondary [57]

CEA not useful in screening [58], preoperative high levels indicates

Poor prognosis [59], post operative increased level indicates incomplete resection or recurrence [60-61].

Screening and diagnosis

Air-contrast barium enema

Proctosigmoidoscopy

Flexible sigmoidoscopy

CT colonography ("virtual colonoscopy")

PRINCIPLES OF SCREENING

Secondary prevention is to identify existing preneoplastic and early neoplastic lesions and to treat them thoroughly and expeditiously

Screening is done if the disease

Is a community problem

Effective treatment is available if the disease is found

Sensitivity and specificity are more

Acceptable by patients and physicians,

Low cost

Recommendations for screening the population without risk factors

Age 50 yrs

No other risk factors

USPSTF GUIDELINES

1) High sensitivity FOBT (guaiac-based or immunochemical) done every

2) Flexible sigmoidoscopy every 3 yrs

3) Colonoscopy every 10 yrs

ACS, MSTF, ACS guidelines

Every 10 years colonoscopy

Every 5 years sigmoidoscopy

Screening is for early detection and non-invasive tests to identify early Cancer reduced potential to prevent cancer because not able to detect Precancerous lesions and lesions that do not bleed. If anyone is Abnormal, colonoscopy.

FOBT every year

FIT every year

Fecal DNA as essential

ACG guidelines

By the age of 50 yrs

By 45 yrs in Africans

Every 10 yrs colonoscopy

Every 5 yrs sigmoidoscopy alternate method

Detected by, every year preferred fecal immunochemical tests

The results of FOBTs

Relays on the amount of blood loss

Hemoglobin degraded

Presence of interfering substance

At least 2 mL of blood required

Location of the lesion

Bleeding from the lesion

Economical value for FOBTS

Fecal occult blood test NIL

An ideal screening test is simple, inexpensive, accurate in terms of being positive if disease is present (sensitivity) or negative if the disease is absent (specificity),relatively safe, and acceptable to the patient. Appropriate screening test should screen for disease that is an important community health problem. Colorectal cancer fulfils this prerequisite.

The goal of screening is not only early detection also reduced mortality. The cancers detected by screening will have a better prognosis than those that arenot. Colorectal cancer screening, can detect cancer precursors, that is, adenomatous polyps, this reduces the incidence of the relevant cancer, as has been well demonstrated for colorectal cancer screening using the FOBT [(3)].

SCREENING TECHNIQUES

G FOBT - Slide Guaiac Tests

It is a Qualitative chromogen tests producing oxidative conversion of a colourless substance to a colored one in the presence of the pseudoperoxidase activity of haemoglobin

At least 2 mL three consecutive (daily) stools are required, digitally evacuated stools are not recommended [3].

Hem occult, Hem occult II, with guaiac-impregnated paper and developing solutions (hydrogen peroxide in denatured alcohol)

Sensitivity & specificity depends upon the fecal hydration (increases sensitivity) not recommended for average screening population, storage decreases sensitivity, and VITAMIN C that can produce alternate reaction of the indicator dye.

Easy available

Cost effect

Easy applicable

Large group of population based studies say that the compliance in elderly patients was 50 to 70%. With gfobt positive rate of 5-6%, adenoma detection rate of 40%, carcinoma of 5-10 % [106] .

Large studies in asymptomatic patient's have1% to 2.6%in nonhydrated slides, colonic neoplasm of 20%, carcinomas 5.6% to 18%

Rehydration of slides will increase in positivity and sensitivity but in a decrease in specificity and positive predictive value.

In a randomised control trial with a study population of 46000, age group of 50- 80 years, fobt positive rate of 2.4% and 18 yrs follow up showed 33% reduction mortality rate [62].

Other RCT with a study population of 152850 , age group of 50-74 years , fobt positive rate of 2.1% and 08 yrs follow up showed 15% reduction mortality rate [63].

Goteborg , Fune and New York study with population of 28000, 61933, 22000 age group of more than 40 yrs, with fobt positive rate of 1.9% , 1%, 1.4% and reduction rate of 10% to 40% for follow up of 10 years.

Other tests

Hemoccult-type slide tests.

Fecal immunochemical tests

Detects human globin not affected by diet or drugs.

A FIT from brush-based sampling technique and an immunogold membrane that employs a dual-antibody system specific for human hemoglobin has undergone initial evaluation, with sensitivity and

specificity for detection of clinically significant neoplasia in studies of asymptomatic and symptomatic patients

Among volunteers compliance for FOBT was 50% to 80% but lower rates 15% to 30% for community screening programs, also is extremely important in determining the cost effectiveness

DNA from the stool

Colonic epithelial cells found in the fecal matter has both normal and cancer DNA detected by PCR amplification assay.

Multicentre study in patients with colonic cancer and normal mucosa showed mutations in APC, p53, K-ras, and BAT-26 with 91% - 100% specificity of 100% for [64,65] other study with genetic mutations in TP53, other above detected mutations in 36 (71%) [66].

Incorporation of additional molecular markers may further improve test Sensitivity and specificity.

Virtual colonoscopy

Patient is prepared as colonoscopy and given oral contrast then CT taken colonography. No need for sedation, no drug allergy, safe, cane image sabdominal and extra abdominal organs [67,68].

Videocapsule endoscopy

Safe and effective but contraindicated in obstruction.

FOLLOW-UP

With proper diet restriction and fobt positive, can repeat or go for diagnostic test. If second test is negative follow up test every 3-6 months.

If fobt is negative no other test is needed.

AIM OF THE STUDY

AIM OF THE STUDY

- Fecal occult blood testing (g FOBT) in asymptomatic elderly individuals for colorectal cancer screening.

MATERIALS AND METHODS

MATERIALS AND METHODS

Place of study	:	Department of Digestive Health and Diseases, Government Peripheral Hospital, Anna nagar, Chennai
Type of study	:	Prospective study
Period of Study	:	March 2012 – Jan 2013
Ethical committee	:	Approval obtained
Consent	:	Informed consent obtained from all participants
Selection of Patients	:	Elderly asymptomatic individuals
Inclusion criteria	:	Age 60-85 years. Both sexes
Exclusion Criteria	:	Family history of colorectal cancer Chronic constipation Bleeding per rectum

Study methodology : Study is a prospective study, and the study group patients attending DDHD OPD, Annanagar satisfying the inclusion and exclusion criteria during the study period March 2012 to JAN 2013.

Patients who come under inclusion criteria are given the prepration about the test and samples taken after written consent.

Patients with positive FOBT are subjected to colonoscopy .

Biopsy if lesion present and correlated.

RESULT

RESULTS

Total number of patients enrolled in the study was 325, both male and female in the age group of 60-85 yrs.

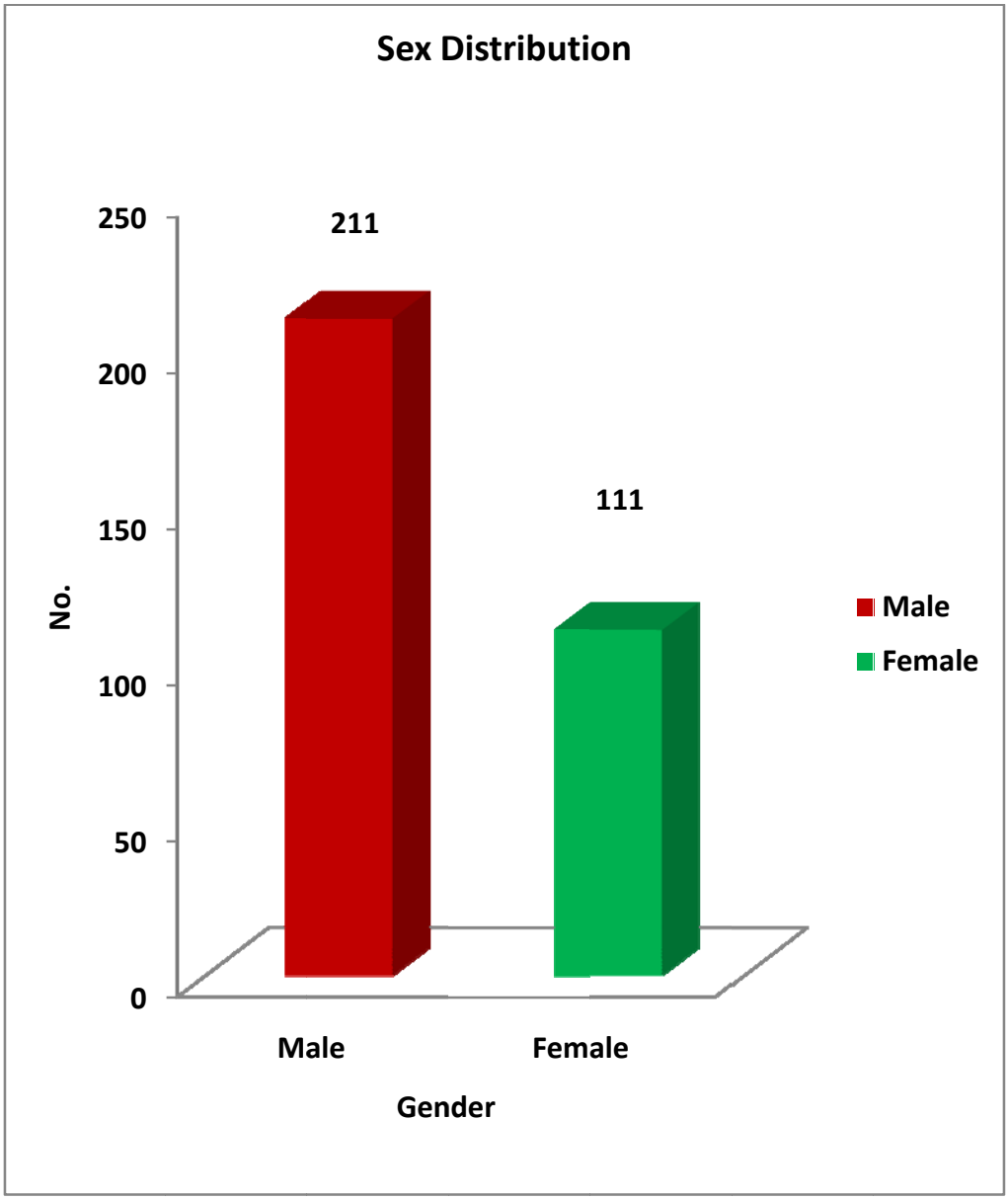
In the above said population g FOBT positivity rate was 38 (11.6%) in Non hydrated slide.

SEX DISTRIBUTION

TABLE: 1

SEX	NO	%
Male	211	65.8
Female	111	34.1

More of male patients participated in our study. Attitude towards the by both male and female were studied. Both the sexes' had better knowledge about bowel cancer but small group did not show any interest after through explanation.



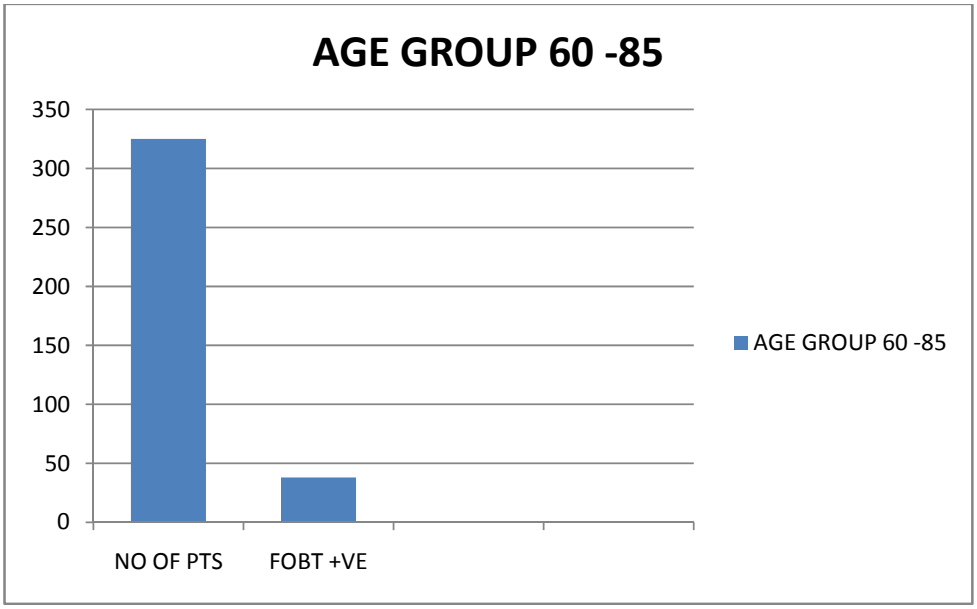
Many male patients were very much refusing because there was no cancer in their family, after explaining the advantage and early diagnosis they accepted.

AGE WISE DISTRIBUTION

TABLE:2

AGE	NO	%
60-65	92	28.3
66-70	96	29.5
71-75	68	20.9
76-80	44	13.5
81-86	25	7.6

Elderly age group were included in the study, in that most common age group was 66-70 yrs



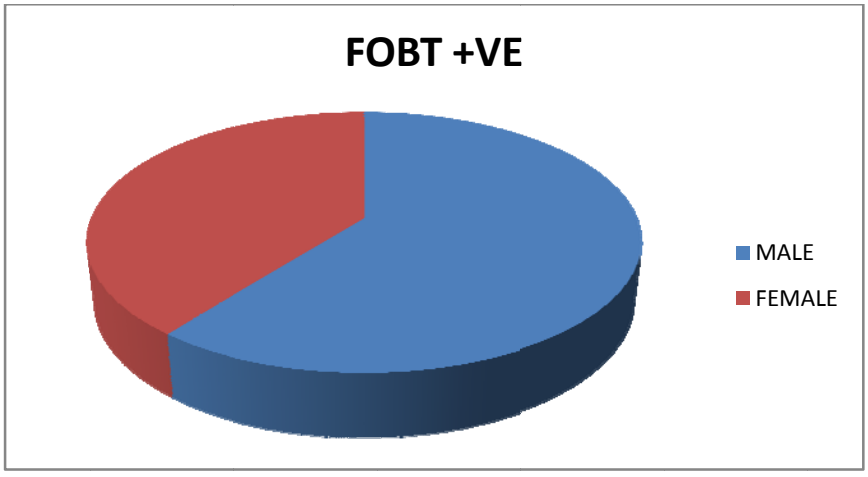
FOBT POSITIVE

TABLE: 3

SEX	NO	%
Male	23	60.5
Female	15	39.4

Out of 325 patients only 38 patients had fobt positive (11.6%), males showed 60.5% and female 39.4% positive rate. FOBT positivity depends on the diet restriction, drugs, site of the lesion, and amount of bleeding from the lesion.

At least 2 ml of blood is needed to produce the result. Long term storage is not needed, at least two consecutive stool samples for three days are useful.



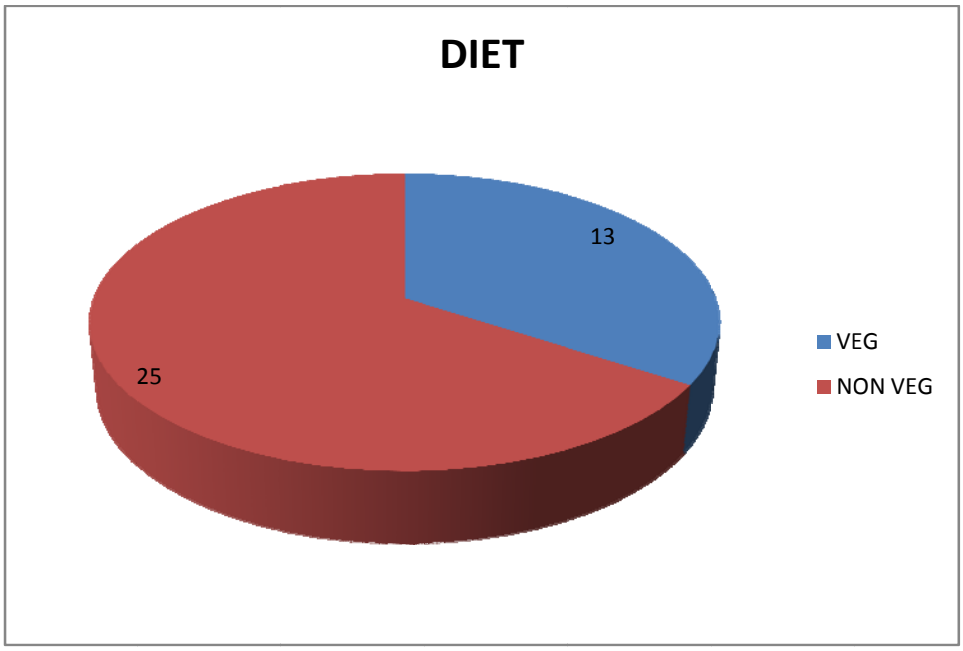
DIET HISTORY

TABLE :3

SEX	NO
Male	13
Female	25

Strict vegetarians taking only fruits and vegetables were only less, persons taking non vegetarian, increased meat, chicken, fish increased.

Mostly chicken were common in non vegetarian diet, many elderly people had the habit of having of meat very much.

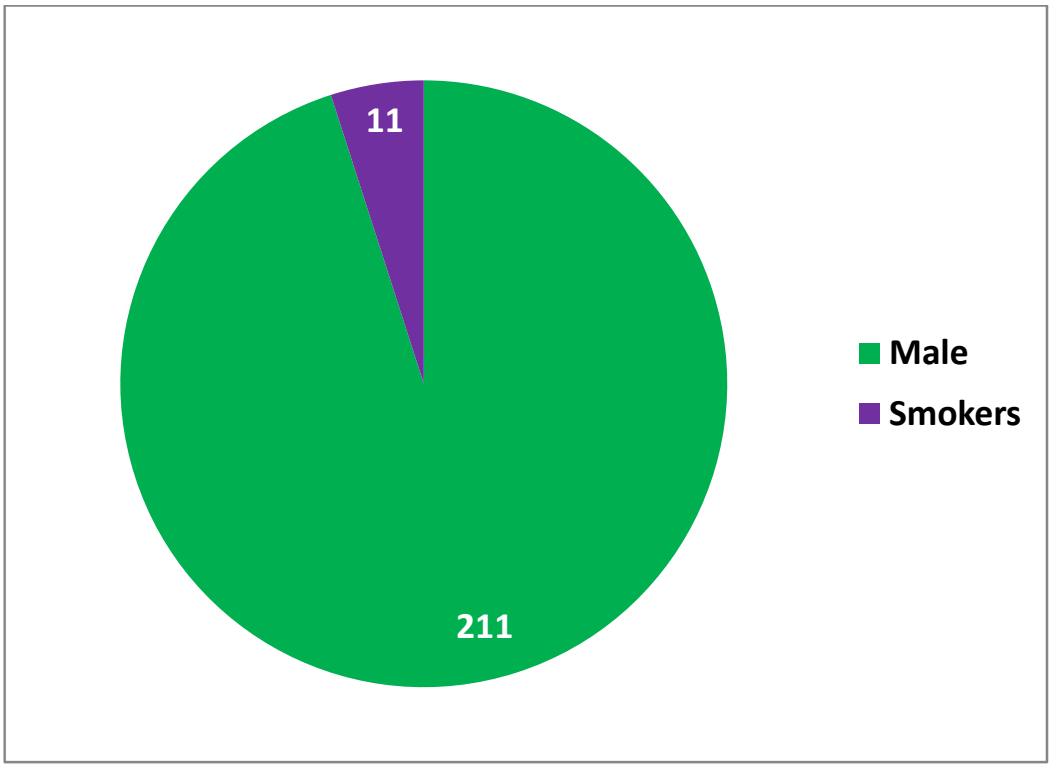


SMOKING HABIT

TABLE :4

SEX	NO	%
Male	11	28.1%

Smoking of Cigrate and beedi were taken. Most people were in the habit of smoking of more than 20-25 yrs of beedi. Cigrate is cost effective so less had the habit of smoking this.

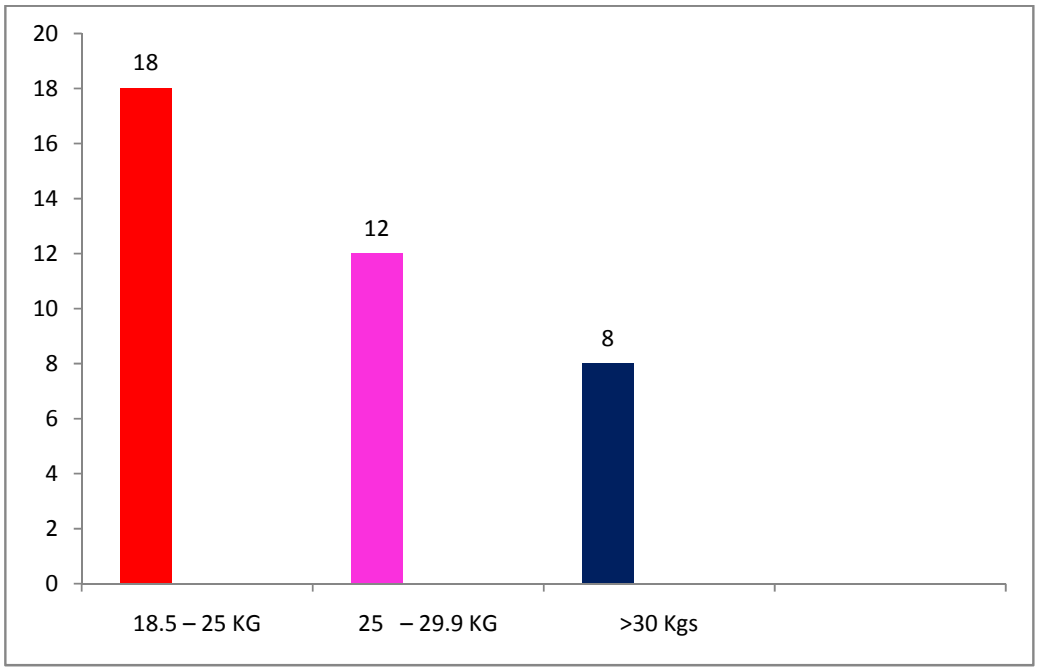


BASAL METABOLIC RATE

TABLE : 5

BMI/KG/M	NO	%
18-25	18	47.3
25-29.9	12	31.5
>30	8	21

1. 18 -25 is normal
2. 25-29.9 over weight
3. >30 obese



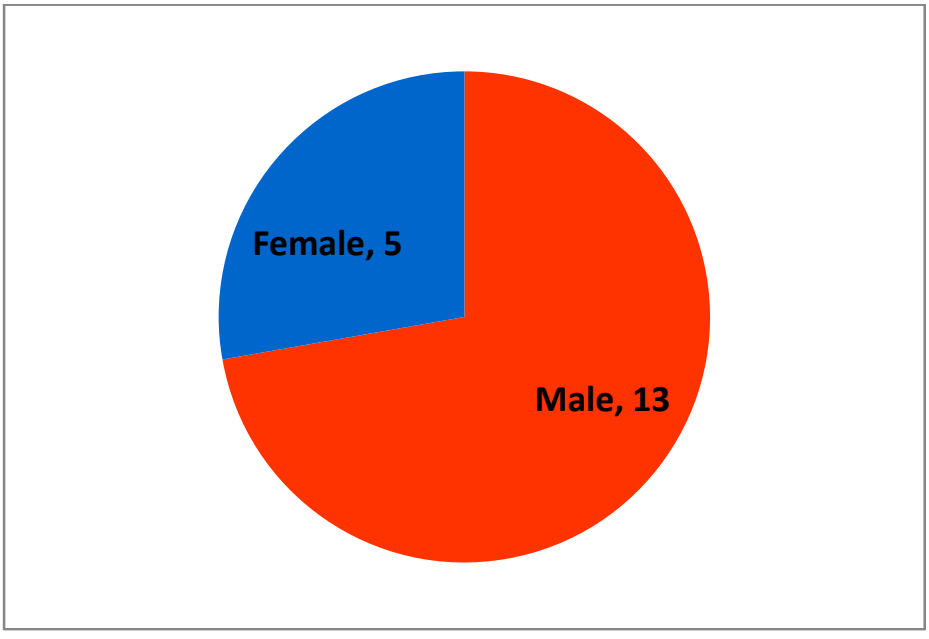
ANAEMIA

TABLE : 6

SEX	NO
Male	13
Female	5

Anaemia was noticed in 18 patients mostly in male that to in patients with pathology all patients with polyp and cancers lesion had anaemia.

Female patients mainly had clinical anaemia



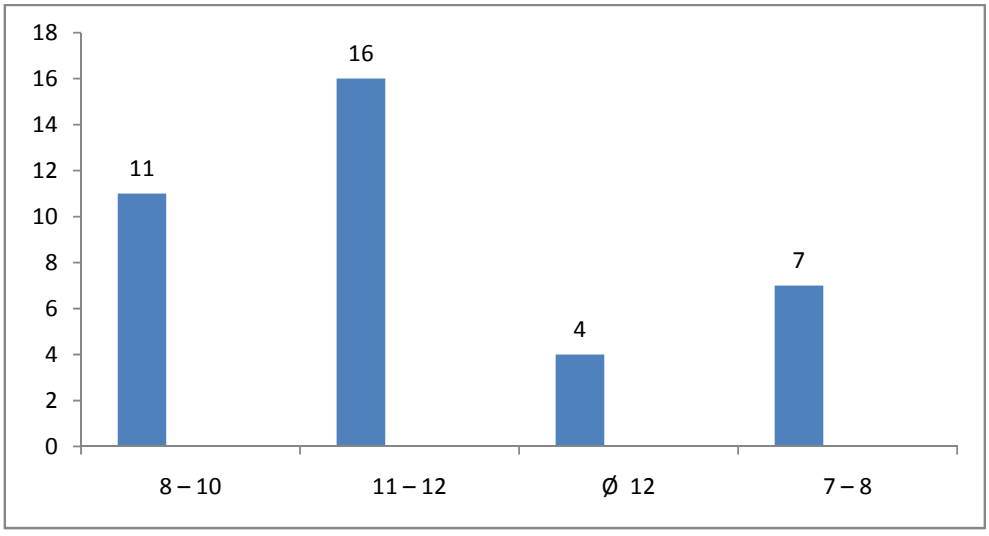
DISTRIBUTATION OF HEMOGLOBIN PERCENTAGE

TABLE : 6

Hb %	NO	%
7-8	7	18.4
8-10	11	28.9
11-12	16	42.1
>12	14	36.8

All anaemic patients had pathology in the form of polyp or cancer. Mainly the right side lesion. This right side lesion present with occult blood loss. Anaemia was common with large polyp.

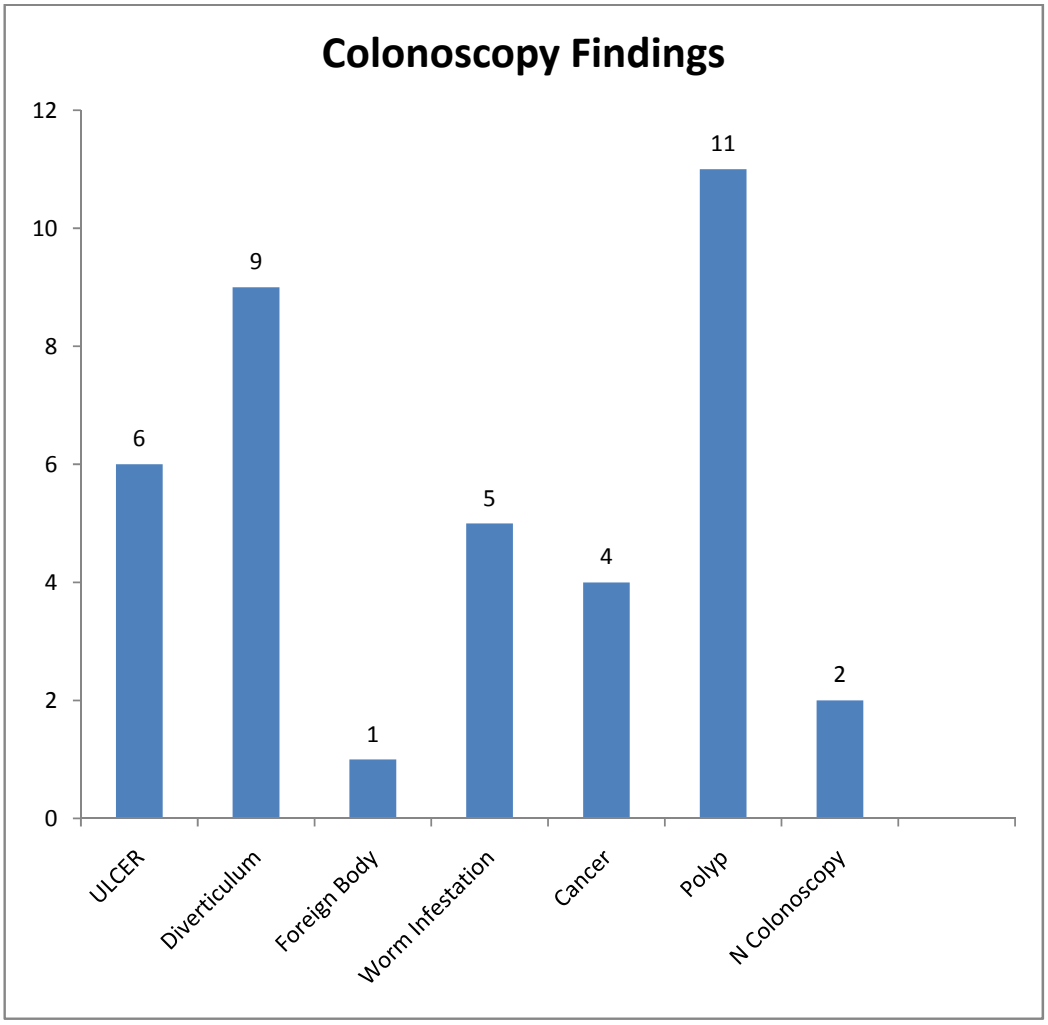
All the patients who had cancer had anaemia.



COLONOSCOPIC FINDING

TABLE:7

Colon finding	no	%
Ulcer	6	15.7
Diverticulum	9	23.6
Foreign body	1	2.6
Worm infestation	5	13
Fobt pos but normal colon	2	5.2
Polyp	11	28.9
Cancer	4	10.5



Ulcer was present in 6 persons , male 5 and female 1.

Tiny ulcer, erythematous < 1-2mm , which very superficial, biopsy showed non specific colitis.

Common in recto sigmoid region followed by rectal area, more ulcers seen in recto sigmoid region.

DIVERTICULUM

Out of 38 patients 9 had diverticulum . males were more common . small diverticulm in the sigmoid, transverous colon ,and caecum. Noevidence of colonoscopic bleeding wered seen. Female patients also had multiple diverticulum but the number was less.

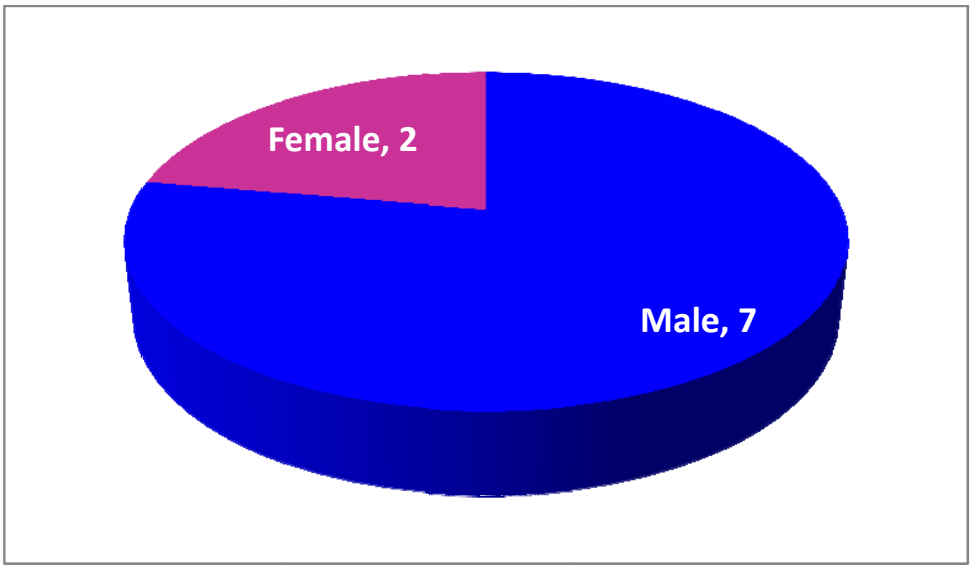
Male persons with diverticulum was 7

Female with diverticulum was 2

In this no body had classical symptoms of diverticulum .

One female patient had proliferative growth in caecum with multiple diverticulum in the ascending colon and caecum.

No other intresting finding in diverticulum group.



FOREIGN BODY

One out of 38 only one (2.6%) had foreign body that to a big stapler pin swallowed 5 days ago, but the patient was given purgation. No previous of constipation, or history suggestive of perforation and examination was normal. Patient had no psychiatric problems.

WORM INFESTATION

Five persons (13%) had worm infestation, in that four were male and one female. All belong to low socioeconomic group mostly male (4) out of five. All were alcoholic with poor oral hygiene. All those patients were given tablet Albendazole 400 mg strat. All other family members were also given.

FOBT POSITIVE BUT COLONOSCOPY NORMAL

Patients had FOBT positive but colonoscopy normal. Two female patients had normal colonoscopy, but both had coronary heart diseases patients . and was on asprin.

POLYP

TABLE: 8

SEX	NO	%
Male	8	21%
Female	3	7.9%

Total 11 patients had polyp, 8 male, 3 female patients.

SITE OF THE POLYP

Caecal polyp 03

Ascending polyp 02

Sigmoid polyp 01

Multiple polyps 06

Single polyp 05

Multiple polyps 06

TYPES OF POLYPS

TABLE: 9

Polyp types	no	%
Diminutive polyp	05	13%
Hyperplastic polyp	03	7.8%
Adenomatous polyp	03	7.8%

Diminutive polyps are multiple polyps they are seen in many areas of the colon. Less than 5mm in size, biopsy taken which shows non specific changes. Most of the polyps were removed while biopsy.

Hyperplastic polyp were 3 in number, there is very minimal chance of malignancy. They were listed for follow up every year.

Adenomatous polyps were 03 in number, tubular adenoma 01, and villous adenoma 02.

Tubular adenoma 01, size 1-2 cm.

Polypectomy done.

Patient is under follow up.

Site of the polyp is mainly sigmoid colon.

Villous adenoma 02 in number located in caecum .

Polyp with stalk both more than 2 cm, polypectomy done

Patient had post polypectomy bleeding, injection adrenalin 1 in 10000 injected into the polyp stalk immediate rescue done.

Patient developed postural hypotension, repeat colonoscopy done which showed bleeding and adherent clot in the stalk, hemoclip applied and bleeding stoped. Histopatholical examination showed free margin. Patient is under surveillance.

Malignancies were found in four patients, three were male and one was female.

One case had 2-3 cm nodular raised lesion in the caecum , biopsy showed well differentiated adenocarcinoma . This patient had anaemia on clinical examination and the Hb was 8.5 mg/dl. Patient was asymptomatic. And

Dukes A classification. Patient was sent for surgery. Right hemicolecotomy done patient is under surveillance. His preoperative CEA level was within normal limits.

Second case showed elevated, nodular mucosa in the ascending colon below the hepatic flexure. Histopathological examination revealed adenocarcinoma, moderately differentiated. Dukes a staging, patient was referred for surgery lost follow up.

Third patient was obese patient from low socioeconomic class with no risk factors except for her age. On colonoscopy she was found to have 3-5 cm of ulcer proliferative lesion in the caecum extending into ascending colon. Biopsy revealed well differentiated adenocarcinoma , stage a. Again going back to her examination she had pallor and her Hb was 8. She had grade 3 dyspnoea.

Fourth case was hepatic flexure growth, male patient he had only belching but he was anaemic with Hb of 9. The growth was like unhealthy mucosa. Biopsy showed adenocarcinoma of poor differentiation. Patient has under gone extended right hemicolecotomy.

DISCUSSION

DISCUSSION

Study population including both sexes of age group 60-85 yrs.

Total numbers were 325 patients, in which 38 patients showed FOBT positivity (11.6%) in non hydrated slides.

In our study we screened have for low risk patients in elderly group so we have selected this age group.

AGE WISE DISTRIBUTION:

In our study we have included elderly age group, in that most common age group affected was 65-75 yrs.

A as per our Indian study from Kashmir states that commonest age group affected was 60-75 yrs.

And also from UK population based study states that the common age group was 60 yrs.

According to world cancer registry the age group affected was 60-85 yrs.

Considering the above studies from various regions, elderly ages were more commonly affected, which was consistent with our study.

Our population common age group was 66-70 yrs.

SEX DISTRIBUTION:

Our population consisted of 211 male and 111 female.

Male patient had 8 polyps and 3 male patients had cancerous lesion.

Mostly they were diminutive polyps, hyperplastic and adenomatous polyp. Three patients had adenomatous polyp.

Various studies from India and other countries have stated that male to female were 2.3:1.

The results our study says that male to female was 2:1

Which is very much correlating with other studies.

FOBT Positive rate

Our study had 38 (11.6%) positive for FOBT.

Studies from various parts of the world have shown that positive rate for FOBT 2.6% to 5%. In hydrated slides up to 8%. Rehydration can increase positivity and sensitivity but specivity will reduce

Fobt positive patients when screened show 5-10 % incidence of cancer, 20 -30% incidence of adenoma.

One year positive predictive value of fobt is 8%, 2-10% at 2 yrs, 11% by 4 yrs.

When compared with other studies our population had more fobt positive rate in non hydrated slides with proper diet advice, collection and technique.

Male population with fobt positive is 23 (60.5)

Female population 15(39.4).

In our study non hydrated slide had 11.6% positive rate.

DIET

Strict vegetarian diet seen in 13 patients and non vegetarian diet in 25 patients.

Several epidemiological studies, case control studies stated that high intake of fiber, more of fruits and vegetables will reduce the incidence of colon cancer [70,71].

Several other prospective cohort studies correlated age and dietary fiber which did not show reduced incidence of colon cancer [72].

According to our study more than 80% were taking non vegetarian.

Even in vegetarian taking population no body were in the regular habit of taking high fiber and vegetables in their diet.

Population based studies revealed that meat eating had significant incidence of colon cancer.

In our study we had both veg and non veg eating people, commonly non veg eating persons. Detailed diet history said that they were in the habit of taking more chicken than meat.

As said by previous studies these patients did not take the significant meat [73, 74].

Many people in our study had combined intake of chicken, mutton, and fish. The cause could be the different in levels of fat content.

EFFECT OF DIET, SMOKING, PHYSICAL ACTIVITY, AND BMI.

Adapting western life style, eating habits is common in our study.

Eating habits is more consisted with previous studies.

Smoking is risk factor in the causation of cancer colon. Due to perfusion of the toxic substances in to the colon leading to cellular proliferation. In this study all were chronic smokers that are more than 10-20 yrs. Both

Cigrate and beedi [75,76,77].

Association of chronic smoking and ca colon [78,79,80 81 82].

Study states that chronic smoking has increased incidence of adenoma and carcinoma by causing damage to DNA, stimulating liver enzymes, leading to proliferation.

Reduced physical activity and rectal prostaglandin are well correlated in colon cancer in aetiology.

Daily activity of at least half to one hour is essential [83,84].

Protection against advanced adenoma [85].

Adenoma is associated with increased waist hip ratio [86].

Multiple cause in formation of adenoma are

Secretion of bile is minim

Increased bowel movement

Hormonal changes

Reduction in insulin like growth factor.

Studies from Indian states showed that westernisation in more towards the aetiology of cancer colon [87-94].

Obesity is one of important risk factor. In our study 21% were obese. One patient who had proliferative growth was in the obese category.

Overweigh was 31.5% in paper who also had growth.

Population based study in Indian cities states that overeating, reduced physical activity, increased BMI will all lead to increased incidence of cancer colon [14-17].

Obesity is associated with micronutrients deficiency such as calcium, Folate, and selenium [95-98].

Study from abroad states that adenoma is increased with increase in weight gain [99,100].

Abdominal obesity is more common [101-102].

International research paper has coated that increased in male will increase cancer death [103-105].

Attitudes of the population towards colon cancer screening

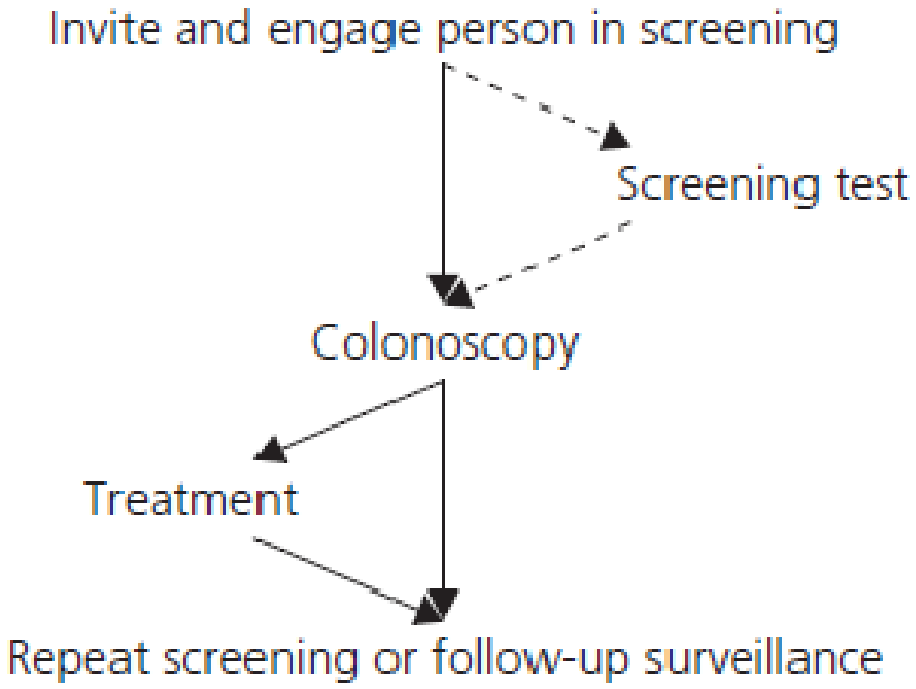
More females were refusing for this investigation, because of stool collection and manipulation. But their knowledge about this disease was very less. After explaining about the disease magnitude and screening program we managed to get 325 cases.

Males were able to understand the disease progression but they partly refused because of negative family history.

But we managed to cases for screening in the male side by regularly explaining them.

Case control study from UK , revealed men attitude towards colon cancer screening [5-9].

This was very much consistent with our study.



Colonoscopy finding in all these patients are as follows

Fobt positive but normal colon, these people had CAD and were on anti platelet drugs.

Incidence of polyp in our study was 28.9%. no malignancy found in hpe examination.

American study revealed that post-mortem finding of polyp were 50%

Colonoscopy finding were only 40%.

Increasing age has same effect on adenoma incidence [6, 7].

Site predilection towards distal colon, if dia less than 5mm seen thought the colon [8, 21, 22].

In this paper 50 were diminutive polyps, and hyper plastic. Only three were tubular and villous adenoma.

We had four malignancies in our study, all were adenocarcinoma, and 3 patients were in stage a. One had large growth but stage a diseases. All patients underwent surgery and every other patient is at our follow up.

Comparing with all other various studies, the results of our study is compatible with the age group of study population 60-85 yrs.

Male gender were more commonly involved, and also participated in the study.

Sex incidence was 2:1 it is also comparable with other studies.

FOBT positive results were increased; this was achieved with adequate preparation of the patient and technique.

Because ease of administration, cost effectiveness, non invasive nature we were able to collect this sample.

And more over this test has all the qualities of screening requirement’s.

More over this colorectal cancer also a diseases that needs screening.

According to the screening principle, ethics, and results we were able to diagnose early colon cancer in four patients, and also to reduce cancer morbidity and mortality.

All the risk factors and aetiological factors were comparable with the previous studies.

CONCLUSIONS

CONCLUSIONS

- Screening in asymptomatic elderly people with FOBT has resulted in detection of unsuspected malignancy, in early stage.
- Reduced malignancy related morbidity and mortality .
- Proof of the value of screening is available from our analysis.
- Our findings together with evidence from other trials suggest that consideration should be given FOBT screening to reduce CRC mortality in the general population.
- FOBT can be still recommended for colorectal cancer screening in a population based study.

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PROFOMA

NAME

AGE

SEX

IP NO

SOCIO ECONOMIC STATUS

ADDRESS

CHIEF COMPLAINTS

- Abdominal pain
- Abdominal distension
- Loss of appetite
- Loss of weight
- Awareness of lump in abdomen
- Altered bowel habits
- Bleeding per rectum / Melina

DRUG HISTORY

GENERAL EXAMINATION

Anemia

Lymphadenopathy

VITALS: PR: BP: TEMP: BMI:

SYSTEM EXAMINATION:

ABDOMEN:

CARDIO VASCULAR:

RESPIRATORY:

CENTRAL NERVOUS SYSTEM:

INVESTIGATIONS:

HB %

MOTION OCCULT BLOOB:

COLONOSCOPY:

MASTER CHART

Age	Sex	Diet	Smoking	BMI	Anaemia	Hb%	Colon Finding
64	m	nv	s	3		a2	u
69	f	v		3	a	a3	d
70	m	nv		2		a2	u
71	m	nv	s	1		a3	d
75	f	v		3		a1	n
68	m	nv		1	a	a4	wi
66	m	nv		2		a3	fb
65	f	nv		1	a	a2	wi
78	m	nv		1		a3	p
80	m	nv	s	2		a4	p
87	f	v		3	a	a3	p
71	m	nv		1		a1	d
70	m	nv	s	2	a	a3	d
72	f	nv		1	a	a3	c
73	m	nv		2		a2	p
74	m	nv		1		a4	d
77	f	v		3	a	a2	p
60	m	nv		1	a	a4	d
62	f	nv		2	a	a1	p
65	m	nv	s	1		a3	u
68	f	nv		2	a	a2	n
74	f	v		3		a3	p
79	m	nv	s	1		a2	d
81	f	nv		2	a	a1	p
76	m	nv	s	1		a3	c
70	m	nv		1		a1	u
69	f	nv		2	a	a3	p
61	m	nv	s	1		a2	wi
60	f	v		1	a	a3	d
62	m	nv		2		a1	p
66	m	nv	s	1		a2	p
73	m	nv		1		a3	u
72	f	v		3	a	a3	wi
70	m	nv	s	1	a	a2	c
80	m	nv		2		a3	d
85	f	v		1	a	a1	c
65	m	nv	s	3	a	a3	u
60	f	v		2	a	a2	wi